

material having poor thermal conductivity and is placed on a heater block, and wherein said sensor array includes a plurality of temperature sensors disposed on the substrate such that a temperature difference between a first portion and a second portion of the substrate can be determined.

143. (New) The apparatus of claim 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123 or 124, wherein the at least one thermal property characterized by said sensor array is a complex dielectric constant.

145. (New) The apparatus of claim 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123 or 124, wherein at least one sensor in said sensor array further comprises a thermometer such that said at least one sensor can conduct a dielectric constant measurement and a thermal measurement simultaneously.

REMARKS

Specification

The Office Action of September 24, 2002 reads that the, "amendments to pages 1 and 78 of the specification are improper...because no marked-up copies of these specification amendments were provided."

The Office Action of December 5, 2002 reads that, "The section 'RELATED CASES' on page 1 of the specification has blank spaces which are missing the U.S. application serial numbers..." and that, "the citation of the attorney docket numbers...are not necessary..." Thus, the "RELATED CASES" paragraph has been replaced with a paragraph having the serial numbers added and the docket numbers removed. Also, a marked-up version of this revision is attached to the present Amendment and Response.

The Office Action of December 5, 2001 also reads that, "Page 78 of the specification refers to U.S. application serial no. 09/133,171, but does not provide the current status of this application." Such status has been incorporated into the present application. Also, a marked-up version of this revision is attached to the present Amendment and Response.

Claims

The Office Action of September 24, 2002 reads that, "Claims 8-10, 12-17, 19-21, 23-25 and 131-146 are objected to under 37 C.F.R. 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only." The Office Action of September 24, 2002 also reads that, "as at least several of those dependent claims noted above were previously objected to ... appropriate correction to those previously objected dependent claims was not made because of the improper multiple dependent claim problem that now exists in those claims." Applicants note that claims 10, 15, 17, 21, 24, 133, 136, 137, 139, 142 and 144 are single dependent claims and have not been revised by this Amendment and Response and claim 146 is already in alternative form and has not been revised by this Amendment and Response. By this Amendment and Response, Applicants have resubmitted claims 8-9, 12-14, 16, 19-20, 23, 25, 131, 132, 134, 135, 138, 140, 141, 143 and 145 such that the claims are dependent in the alternative only. Moreover, certain of the claims are shown herein as being revised in the same manner that they were revised in Applicants' Amendment and Response of February 27, 2002 for addressing objections made in the Office Action of December 5, 2001. Because Applicants' Amendment and Response of February 27, 2002 specifically addressed each of the objections made in the Office Actions of December 5, 2001, specific discussion of each of those amendments has been left out of the present Amendment and Response to avoid redundancy.

CONCLUSION

The actions taken in this response are in the interest of expediting prosecution and with no intention of surrendering any range of equivalents to which Applicants would otherwise be entitled.


Since the Examiner has indicated the allowability of the claims in the present application, Applicants request that the present application be allowed and passed to issuance at the Examiner's earliest convenience.

If the Examiner has any comments or suggestions, which could place this application in even better form, the Examiner is requested to telephone

the undersigned attorney at the below-listed number.

If for some reason Applicants have not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent the abandonment of this application, please consider this as a request for an extension for the required time period and/or authorization to charge Deposit Account No. 50-0496 in the name of Symyx Technologies, Inc. for any fee which may be due.

Respectfully submitted,
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10 - 7, 2002
Attorney Docket No.: 1012-001(98-23)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

The paragraph beginning on page 78 at line 14 has been amended as follows:

In this example, surface launched acoustic wave sensors can be fabricated on thin silicon-nitride or etched silicon membranes 174 similar to those described above. A piezoelectric material 176, such as zinc oxide, is then deposited as a thin layer on top of the membrane to produce an acoustic wave sensing device. The physical dimensions of the electrode, such as its thickness, size, and configuration, can be adjusted so that the electrode operates in, for example, a surface acoustic wave (SAW) resonance mode, a thickness shear mode (TSM), a flexural plate wave (FPW) resonance mode, or other resonance mode. When the electrode acts as a resonator, its resonating response is affected by, for example, the sample's viscosity and density. Copending U.S. Application No. 09/133,171 to Matsiev et al, filed August 12, 1998, describes mechanical resonators in more detail and is incorporated by reference herein.

The paragraph beginning on page 1 at line 7 has been amended as follows:

[The present application is related to co-pending U.S. Patent Application No. 09/_____ (Attorney Docket No. 65304-054/SYMYX 98-36) and U.S. Patent Application No. 09/_____ (Attorney Docket No. 65304-055/SYMYX 98-37), all filed on December 10, 1998 and incorporated herein by reference.]

The present application is related to co-pending U.S. Patent Application No. 09/210,428 and U.S. Patent Application No. 09/210,086, all filed on December 10, 1998 and incorporated herein by reference.

In th Claims:

8. (Amended) The apparatus of claim 1, 2, 3, 4, 5 or 6 [7], wherein the thermal property characterized by said sensor array is at least one selected from the group consisting of heat capacity, thermal conductivity, and thermal stability.

9. (Amended) The apparatus of claim 1, 2, 3, 4, 5 or 6 [7], wherein at least one sensor in said sensor array comprises:

a microthin film membrane supported by said substrate such that said sensor array is an array of microthin film windows; and

a heater/thermometer pattern disposed on said microthin film membrane.

12. (Amended) The apparatus of claim 1, 2, 3, 4, 5 or 6 [11], wherein said microthin film membrane forming said at least one sensor [sensors] is a silicon nitride membrane, and wherein said substrate supporting said silicon nitride membranes in said sensor array is a silicon wafer.

13. (Amended) The apparatus of claim 1, 2, 3, 4, 5 or 6 [7], wherein said substrate is made of a polymer sheet, and wherein said sensor array includes a plurality of heaters/thermometers [heater/thermometers] disposed on said polymer sheet.

16. (Amended) The apparatus of claim 1, 2, 3, 4, 5 or 6 [7], wherein said substrate is made of a poor thermal conducting material that is at least 100 microns thick, and wherein said sensor array includes a plurality of heaters/thermometers disposed on said poor thermal conducting material.

19. (Amended) The apparatus of claim 1, 2, 3, 4, 5 or 6 [18], wherein said substrate is made of a polymer sheet.

20. (Amended) The apparatus of claim 1, 2, 3, 4, 5 or 6 [7], wherein said substrate is made from a material having poor thermal conductivity and is placed on a heater block, and wherein said sensor array includes a plurality of

temperature sensors disposed on the substrate such that a temperature difference between a first portion and a second portion of the substrate can be determined.

23. (Amended) The apparatus of claim 1, 2, 3, 4, 5 or 6 [1, 2, 3, 4, 5 or 6] wherein the at least one thermal property characterized by said sensor array is a complex dielectric constant.

25. (Amended) The apparatus of claim 1, 2, 3, 4, 5 or 6 [22], wherein at least one sensor in said sensor array further comprises a thermometer such that said at least one sensor can conduct a dielectric constant measurement and a thermal measurement simultaneously.

131. (New) The apparatus of claim 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123 or 124, wherein the thermal property characterized by said sensor array is at least one selected from the group consisting of heat capacity, thermal conductivity, and thermal stability.

132. (New) The apparatus of claim 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123 or 124, wherein at least one sensor in said sensor array comprises:

a microthin film membrane supported by said substrate such that said sensor array is an array of microthin film windows; and

a heater/thermometer pattern disposed on said microthin film membrane.

134. (New) The apparatus of claim 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123 or 124, wherein said microthin film membrane forming said at least one sensor is a silicon nitride membrane, and wherein said substrate supporting said silicon nitride membranes in said sensor array is a silicon wafer.

135. (New) The apparatus of claim 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123 or 124, wherein said substrate is made of a polymer

sheet, and wherein said sensor array includes a plurality of heaters/thermometers disposed on said polymer sheet.

138. (New) The apparatus of claim 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123 or 124, wherein said substrate is made of a poor thermal conducting material that is at least 100 microns thick, and wherein said sensor array includes a plurality of heaters/thermometers disposed on said poor thermal conducting material.

140. (New) The apparatus of claim 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123 or 124, wherein said substrate is made of a polymer sheet.

141. (New) The apparatus of claim 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123 or 124, wherein said substrate is made from a material having poor thermal conductivity and is placed on a heater block, and wherein said sensor array includes a plurality of temperature sensors disposed on the substrate such that a temperature difference between a first portion and a second portion of the substrate can be determined.

143. (New) The apparatus of claim 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123 or 124, wherein the at least one thermal property characterized by said sensor array is a complex dielectric constant.

145. (New) The apparatus of claim 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123 or 124, wherein at least one sensor in said sensor array further comprises a thermometer such that said at least one sensor can conduct a dielectric constant measurement and a thermal measurement simultaneously.